

Application No.: 10/776,344

Docket No.: 4620-005

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (canceled)

2. (currently amended) A wastewater treatment bioreactor, comprising:

a reaction device comprising an aeration zone, a settle zone, and a barrier and a gap located between said aeration zone and settle zone; and

an aeration device located above the aeration zone;

~~The bioreactor in accordance with claim 1, wherein air intake of the aeration device comprises is installed in the middle of~~

a wastewater inlet pipe,

an air intake pipe installed inside said wastewater inlet pipe,

a first one end of the sleeve having an upstream end [[11 is]] connected with a downstream end [[exit]] of the inlet pipe,

a current divider having an upstream end connected with a downstream end of the first sleeve, and

a second sleeve having an upstream end the other end is connected with one end of a diffuent implement, of which other end is connected with one end of the sleeve 12 a downstream end of the current divider.

3. (canceled)

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4. (currently amended) The bioreactor in accordance with claim 2, wherein the ~~diffluent implement~~ current divider is positioned ~~equipped~~ at ~~[[the]]~~ another gap ~~which is between~~ the downstream end of the first sleeve ~~[[11]]~~ and the upstream end of the second sleeve ~~[[12]]~~.

5. (currently amended) The bioreactor in accordance with claim 2, wherein the ~~diffluent implement~~ current divider is approximately hollow and wherein an inner diameter of said current divider decreases in a direction from the downstream end of said current divider toward the upstream end of said current divider ~~conical with an upward are in the big end~~.

6. (currently amended) The bioreactor in accordance with claim 2, wherein the wastewater inlet pipe comprises a first pipe and a second ~~consists of a slanting pipe and a straight pipe~~ slanted at between which there is an angle in 15-45 degree ~~degrees~~ to said first pipe.

7. (currently amended) The bioreactor in accordance with claim 2, wherein the first and second sleeves ~~sleeve 11 and sleeve 12~~ and the ~~diffluent implement~~ current divider ~~between them~~ are all vertical.

8. (new) The bioreactor in accordance with claim 5, wherein an outer wall of said current divider is curved radially inwardly as said current divider extends from the downstream end toward the upstream end thereof.

9. (new) The bioreactor in accordance with claim 8, wherein the wastewater inlet pipe comprises a first, vertical pipe and a second pipe slanted at 15-45 degrees to said first, vertical pipe.

10. (new) The bioreactor in accordance with claim 9, wherein the first and second sleeves and the current divider are all vertically oriented.

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11. (new) The bioreactor in accordance with claim 10, wherein the air inlet pipe is installed within said first, vertical pipe.

12. (new) A wastewater treatment bioreactor, comprising:
a reaction device comprising an aeration zone, a settle zone, and a barrier located between said aeration zone and settle zone; and
an aeration device partially received in said aeration zone, said aeration device comprising an inlet pipe having a wastewater inlet and an air inlet at an upper portion thereof, and an outlet at a lower portion thereof;
a first sleeve having an upper end connected with the outlet of the inlet pipe, and a lower end;
a second sleeve having an upper end downwardly spaced from the lower end of said first sleeve by a gap, and an open, lower end, wherein said gap and said open, lower end provide fluid communication between an interior of said aeration device and an interior of said reaction device in said aeration zone; and
a current divider having an upper end connected to the lower end of said first sleeve and a lower end connected to the upper end of said second sleeve, said current divider bridging said gap.

13. (new) The bioreactor in accordance with claim 12, wherein an outer wall of said current divider is curved radially inwardly as said current divider extends from the lower end thereof toward the upper end thereof.

14. (new) The bioreactor in accordance with claim 13, wherein the current divider is hollow.

15. (new) The bioreactor in accordance with claim 14, wherein the current divider has an inner diameter gradually decreasing the lower end of said current divider to the upper end of said

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current divider.

16. (new) The bioreactor in accordance with claim 12, wherein the upper portion of said inlet pipe comprises first and second branches which are slanted relative to each other, said wastewater inlet being provided at an upper portion of said first branch.

17. (new) The bioreactor in accordance with claim 16, wherein the aeration device further comprises an air intake pipe having said air inlet at an upper portion thereof, said air intake pipe being installed within said second branch.

18. (new) The bioreactor in accordance with claim 17, wherein said air intake pipe terminates at a position below a connection between said first and second branches.

19. (new) The bioreactor in accordance with claim 18, wherein said branches are slanted at 15-45 degrees relative to each other.

20. (new) The bioreactor in accordance with claim 19, wherein the air intake pipe, the second branch, the first and second sleeves, and the current divider are all vertically oriented.